Summary

The Technology Delegation was instructed by the Government to

encourage greater interest in mathematics, natural sciences, technology

and ICT. During the inquiry, the Delegation has conducted

outreach work, implemented the ‘The Broad Line’ campaign,

published background reports, organised a large number of

conferences and roundtable talks, and taken an active role in the

media and debates.

The work of the Technology Delegation has been guided by the

following vision of the future:

A Sweden that has a strong competitive advantage in the global

knowledge economy and a stable national labour market.

A Sweden that tackles the major common challenges ahead, e.g.

in the areas of environment, demography and infrastructure.

A Sweden that gives all citizens the skills required to understand

and take advantage of opportunities, and to influence developments

in a complex and technically advanced society.

This vision calls for very high levels of skill in mathematics, natural

sciences, technology and ICT, both in the labour market and in

everyday life. The Technology Delegation’s inquiry shows that

currently, Sweden is poorly equipped to live up to these ambitions.

The problems that the Technology Delegation has identified are

considerable. Student interest in specialising in science and

technology is still too low. This poses a threat to future cuttingedge

expertise. Under even greater threat are the wide-ranging skills

that all citizens need. These should be secured through the school

system.

The problems are complex, as their root causes can be found in

the crisis of confidence that is currently affecting natural sciences

and technology among young people throughout the western

**15**

**Summary SOU 2010:28**

world. Many young people seek relevance to societal issues and

personal identity in their choice of education and career, but find it

difficult to recognise these aspects in mathematics, natural

sciences, technology and ICT. The problem is aggravated by the

fact that the school system lacks the ability to harness the

fundamental interest that most children and young people have;

nor does the school system develop to a sufficient level the skills

that everyone needs. We are now seeing the consequences in the

form of declining pupil performance.

As regards the school system, the Technology Delegation has

highlighted in particular that leadership, monitoring, teacher

education and continuing education for teachers are not currently

working for mathematics, natural sciences, and, in particular,

technology. These subjects are extremely under-dimensioned in

teacher education, despite the fact that the needs of schools are

great. In their operations, far too few school authorities take their

responsibility to strengthen these areas. The national resource

centres that support subject development have limited resources

and mandates.

The Technology Delegation also stresses that the link between

school and higher education is weak. Higher education currently

has a recruitment base that is much too small, as too few pupils

leave upper secondary school with the appropriate entry qualifications

and prior knowledge to go on to study in these fields. In some

educational programmes, uneven gender distribution is a serious

problem. The challenges facing higher education are many, and the

knowledge standards required are rising apace with changes in

society and the labour market. At the same time, there is a lack of

coherent support structures at central level to develop teaching.

To overcome these problems, coordinated, long-term and broad

efforts are needed that enjoy the full support of the municipalities,

the business sector, stakeholder organisations and other key actors.

Based on both Sweden’s host of problems and other comparable

countries’ experiences, the Technology Delegation has presented a

model for how future efforts should be planned.

The Technology Delegation proposes that the Government

establish a national skills strategy for mathematics, natural sciences,

technology and ICT, which should aim to increase interest and

improve the level of knowledge in these areas. The strategy’s

priority objectives should be that by 2020:

**16**

**SOU 2010:28 Summary**

all pupils at compulsory school have access to relevant technology

teaching

the Swedish results in all PISA and TIMSS studies are in the

upper quartile in both mathematics and natural sciences

the share of pupils completing a natural sciences or technology

upper secondary school programme is at least 30 per cent

the share of pupils beginning an engineering programme at

higher education level is at least 10 per cent per age cohort

the gender distribution in engineering programmes at higher

education level is even (within the range of 40–60 per cent).

To achieve these objectives, the strategy should target the areas of

teacher qualifications, teaching in schools, the transition between

school and higher education, teaching at higher education institutions

and collaboration and dialogue with society.

Moreover, the Technology Delegation proposes that the

Government appoint and lead a national commission with a special

focus on Sweden’s development in mathematics, natural sciences,

technology and ICT. This commission should be responsible for

the strategy, monitor its different parts, promote efforts at political

level and mobilise the key actors that can make a contribution.

The Technology Delegation also proposes a number of initiatives

relating to school, society and higher education that the Government

should adopt and finance in the first stage of strategic work.

These are:

Technology and Science Municipalities

Recruitment campaign for the new teacher education programmes

Targeted continuing education for teachers and study and

careers counsellors

Shortened teacher education programmes for people with

specialist subject knowledge

Development of teaching in schools

Marketing initiatives, such as ‘The Broad Line’

Collaboration between schools and working life

**17**

**Summary SOU 2010:28**

**18**

Initiatives and projects

Transition between school and higher education

Development of teaching in higher education institutions

To implement the strategy, the Technology Delegation proposes

that the Government set up a Platform for Technology and Science

with responsibility for coordination, allocation of funds, communication

and analysis. The work should be conducted in partnership

with the actors currently involved in these issues.

Finally, the Technology Delegation wishes to take a number of

standpoints relating to current education policy reforms. Most of

these have been communicated by the Technology Delegation in

the course of its inquiry. They include:

reforming the technical and natural sciences upper secondary

programmes so that more pupils meet the entry requirements

for higher education in these areas;

reforming technology as a subject in compulsory school so as to

strengthen its relevance and scientific basis;

more stringent qualification requirements for teachers, including

the requirement that they have both specialised knowledge of

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